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10/783,889

02/20/2004

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10,193

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EXAMINER

COMSTOCK, DAVID C

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/783,889  
Filing Date: February 20, 2004  
Appellant(s): JACKSON, ROGER P.

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John C. McMahon  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 25 January 2010 appealing from the Office action mailed 18 September 2008.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

An appeal brief has been filed in related serial no. 10/784,066. An appeal conference was held for that application on 28 April 2010 and an examiner's answer was forwarded to the Board on 10 May 2010.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-20 are cancelled and claims 21 to 23 are rejected, pending and appealed.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken is being maintained by the examiner.

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

Shafer (DE 298 10 798 U1)

Translation of paragraph of Shafer (DE 298 10 798 U1) describing Fig. 2, as provided by Appellant in the arguments filed 05 November 2007, at page 17, in related application no. 10/784,066; this translated paragraph is also set forth below in the grounds of rejection and response to arguments.

Full translation of Shafer (DE 298 10 798 U1), Schreiber Translations, Inc., May 2010.

Jackson (6,004,349)

## **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the appellant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 298 10 798 U1 (Shafer) (cited by Appellant).

Shafer discloses the claimed invention including a threaded bone screw device 1 comprising an open head formed by a pair of spaced apart arms 4 and a cylindrical closure 3 (see, e.g., Figs. 1 and 2). The arms define a receiving channel for a bone fixation rod 2. Facing surfaces of the arms define guide and advancement structure 9 for rotatable mating with a guide flange on the closure. The guide flange is continuous and helical and has a compound contour including an enlarged outer periphery with an inward facing component. A multi-surface 14 hexagonal aperture 13 extends partially through the closure for engagement with a tool. The device comprises a break off installation head. It is noted that the flange (thread) has a compound contour because it is a reverse angle thread and/or lobular (i.e. Figs. 1 and 2) and it extends helically.

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Thus, as between several different points in any given region of the helically extending flange, there is a compound curvature. It is further noted that a translation provided by Appellant teaches not only that the device has threads but that the anti-splay grub screw is screwed in. The threads are helically wound and satisfy the claims as set forth in the rejection. A translation of Shafer referring to Fig. 2 reads:

In the exemplary embodiment shown in Figure 2, the bifurcated head 4 of the bone screw 1 likewise has a **thread**, which, however, has a top flank 11 and a bottom flank 10 embodied in a stepped fashion. The shoulder of the bottom flank 10 is shaped such that it forms an undercut 17. This undercut 17, particularly by means of the shoulder 18, prevents the legs 5 from being bent radially outward while the **grub screw** 3 is being **screwed in**. A positive lock is thus produced in the radial direction between the bifurcated head 4 and grub screw 3. This positive lock prevents, as previously mentioned, any slippage of the leg 5. (emphasis added)

It is quite clear that Shafer discloses a "threaded" structure (i.e., a *helically wound* flange structure).

Claims 21-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Morrison et al. (6,296,642; cited by Appellant).

Morrison et al. disclose a medical device comprising a threaded shank 10 and a cylindrical body 12. The shank includes an open head 11 formed by a pair of spaced arms 20 defining a channel 16 therebetween. The head includes mutually facing surfaces with guide and advancement structures 44 that mate with complementary structures on the cylindrical body. The structures comprise a continuous helical flange having reverse angle threads facing the closure axis of the device (see Fig. 3). The body includes a multi-surface aperture forming a socket for a tool and a break-off installation head also having such an aperture. Morrison et al. disclose using either

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hexagonal or star-shaped (i.e. "multi-surface") tool socket forms (see, e.g., col. 4, lines 2-4). It is noted that the flange (thread) has a compound contour because it is a reverse angle thread and it extends helically. Thus, as between several different points in any given region of the helically extending flange, there is a compound curvature.

### **(10) Response to Argument**

#### Shafer Rejection

Appellant asserts that the device of Shafer (DE 298 10 798 U1) is not "helically wound". Helically wound just means it progresses in a spiral or helical fashion, i.e. is threaded (as opposed to "twist-lock" designs). The translation provided by Appellant in the reply filed 05 November 2007, in related application no. 10/784,066, teaches not only that the device has threads but that the anti-splay grub screw is screwed in. This translation of Shafer referring to Fig. 2 reads:

In the exemplary embodiment shown in Figure 2, the bifurcated head 4 of the bone screw 1 likewise has a **thread**, which, however, has a top flank 11 and a bottom flank 10 embodied in a stepped fashion. The shoulder of the bottom flank 10 is shaped such that it forms an undercut 17. This undercut 17, particularly by means of the shoulder 18, prevents the legs 5 from being bent radially outward while the **grub screw** 3 is being **screwed in**. A positive lock is thus produced in the radial direction between the bifurcated head 4 and grub screw 3. This positive lock prevents, as previously mentioned, any slippage of the leg 5. (emphasis added)

It is quite clear that Shafer discloses a "threaded" structure (i.e., a *helically wound* flange structure).

In addition, the translation attached to this Examiner's Answer also leaves no doubt that the Shafer device is threaded. For example, page 7, lines 6-14, of the

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attached translation describes the second embodiment (Fig. 2) with the terms "**threading**" and a "**setscrew**" (emphasis by Examiner). In addition, page 10, lines 5-7, describes how the thread design shown in Fig. 2 prevents the legs of the head of the screw from bending outward: "This undercut 17 prevents--in particular via the lug 18-- the leg 5 from bending radially outward **when screwing in the setscrew** 3." (emphasis by Examiner).

Appellant's "opinion" (see brief, page 16, line 2) that the Shafer reference discloses a non-threaded design is irrelevant since it overlooks or misconstrues what the reference explicitly says, namely, that the design shown in Fig. 2 includes a threaded set screw that is screwed in. It is really as simple as that. Appellant draws a picture next to Fig. 2 (see brief, page 20) and takes the liberty to exaggerate what a threaded design would supposedly look like; however, given the very small portion of the entire circumference of the threads that is actually shown, the purported pitch imagined by Appellant is unnecessary for a helical thread and implausible in a single-start thread design (only one helical thread ridge). The angle that is necessary for the threads of Fig. 2 would not be extreme (as in Appellant's sketch) in the very small portion of the circumference that is shown in the basic drawing of Fig. 2. Moreover, Appellant's argument runs counter to the express teaching of Shafer.

Appellant also makes the statement that "[w]hen reviewing the Shafer patent, as one having skill in the art at the priority date would have done, an engineer or other skilled person would look to see what Shafer *actually* teaches. The second embodiment of Shafer *neither* shows *or* [sic] *teaches* a closure, so a closure must be



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*somehow* imagined to work with the receiver of Fig. 2." (see Brief, page 18, line 21 - page 19, line 1; emphasis by Examiner). Interestingly, when one *actually* looks at what Shafer teaches, one learns that Shafer teaches that the closure is "setscrew 3" and that it forms a friction lock with the undercut 17 and lug 18 of the thread of the head 4 (translation, page 10, lines 5-7). While it is clear to a reasonable person having ordinary skill in the art from the preceding passage and Fig. 2 what the setscrew would look like, page 7, lines 12-14, of the translation also states (with regard to the second embodiment), "In particular, the setscrew is equipped with an outer threading which corresponds to the inner threading of the fork head." Therefore, Appellant's statement that a closure is not taught is clearly in error. Moreover, one's imagination need not be strained to envisage the shape of the thread on the set screw, since the profile of the mating structure is clearly seen in Fig. 2.

Appellant also discusses a later patent by Shafer (US 6,340,749) and attempts to suggest that because Shafer utilizes an unthreaded twist-lock design in the later patent, that this must be what he was disclosing in the reference applied in the rejection. However, this faulty logic would hold that if a person gets more than one patent, each patent must disclose the same basic structure. In fact, the Shafer reference of the present rejection clearly discloses a threaded design and the later patent is simply a later design. Appellant also did not consider or address why Shafer went to lengths to show how the twist-lock design works in the later U.S. patent but did not do so in the Shafer reference applied in the rejection. The reason is that the earlier Shafer reference applied in the rejection uses a threaded design as clearly stated in the

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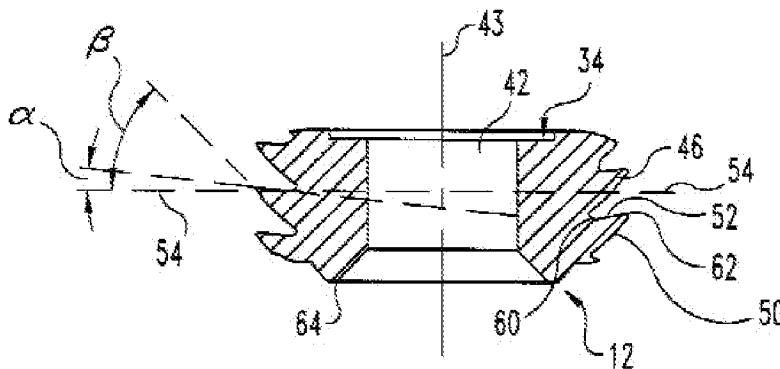
reference and does not use a twist-lock design as argued by Appellant. It is unclear what the later Shafer reference is supposed to prove for Appellant at all since it describes a nut 18 forming a "bayonet joint" (see, e.g., col. 3, lines 6-9) while the earlier Shafer reference makes no mention of any such joint. Furthermore, the later Shafer reference uses the term "set screw" for the threaded portion of the head while referring to the twist-lock portion as a "bayonet joint" (see, e.g., col. 3, lines 16-21). This simply provides more evidence that a "set screw" is exactly what one would expect it to be: a threaded screw. Likewise, the other references that use other anti-splay designs cited by Appellant prove nothing with regard to what Shafer (DE 298 10 798 U1) teaches.

#### Morrison Rejection

As noted in the final rejection mailed 18 September 2008, Appellant failed to respond to the outstanding rejection over Morrison et al. in the reply filed 13 June 2008. Even in the present appeal, Appellant's argument regarding Morrison does not prove the conclusion by Appellant made therein. At pages 24-25 of the brief, Appellant argues that Morrison discloses a "simple V-thread of the reverse angle type" and concludes that "[n]othing in Morrison, et al. in any way shows, suggests or teaches providing a closure that has structure which radially interlocks with the receiver arms." However, the very purpose of the reverse angle thread is to radially interlock with the arms and prevent outward splaying of the arms upon tightening of the closure. "Splaying" refers to the undesired outward bending of the arms (a.k.a., legs or wall sections) of a fixation screw upon tightening of the closure onto a fixation rod. Morrison et al. describe this problem

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at col. 1, lines 46-67. To prevent splaying, Morrison provides a reverse-angle thread on the closure that provides a radially interlocking component of force against a corresponding reverse-angle thread on the walls of the fixation screw (see, col. 2, lines 32-34 and 42-64). Therefore, Appellant's statement that "[n]othing in Morrison, et al. in any way shows, suggests or teaches providing a closure that has a structure which radially interlocks with the receiver arms." is clearly wrong. To be even more specific, it is because of the relatively enlarged portion of the reverse-angle thread above horizontal (vis-à-vis a traditional thread design) that a radially interlocking relationship between the closure and legs is created. See, e.g., Fig. 3 of Morrison included below, showing the reverse-angle thread of the closure, which is designed to radially interlock with a corresponding reverse-angle thread on the walls of the fixation element to prevent splaying of the legs.

**Fig. 3**

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/David Comstock/  
Examiner, Art Unit 3733

Conferees:

/Cris L. Rodriguez/  
Supervisory Patent Examiner, Art Unit 3732

/Thomas C. Barrett/  
Supervisory Patent Examiner, Art Unit 3775